

CLAIMS

[Amended - PCT Chapter II]

1. An accelerator comprising a plurality of accelerating cells arranged to convey a beam, adjacent cells being linked by a coupling cell, the coupling cells being arranged to dictate the ratio of electric field in the respective adjacent accelerating cells, at least one coupling cell being variable to allow a range of ratios including positive values and negative values.
2. An accelerator according to claim 1 in which the at least one coupling cell is variable smoothly from a positive value to a negative value.
3. ~~An accelerator according to claim 1 or claim 2 in which the beam is relativistic over substantially the length of the accelerator.~~
4. An accelerator according to any one of the preceding claims in which the variable coupling cell comprises a cavity containing a conductive element rotatable about an axis transverse to the beam axis.
5. The use of an accelerator in which a plurality of accelerating cells are arranged to convey a beam, and adjacent cells are linked by a coupling cell, the coupling cells being arranged to dictate the ratio of electric field in the respective

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adjacent accelerating cells, at least one coupling cell being variable to allow a range of ratios including positive values and negative values.

6. Use according to claim 5 in which the at least one coupling cell is variable smoothly from a positive value to a negative value.
7. An operating method for an accelerator in which a plurality of accelerating cells are arranged to convey a beam, and adjacent cells are linked by a coupling cell, the coupling cells being arranged to dictate the ratio of electric field in the respective adjacent accelerating cells, at least one coupling cell being variable to allow a range of ratios including positive values and negative values.
8. The method of claim 7 in which the at least one coupling cell is variable smoothly from a positive value to a negative value.
9. The use of an accelerator according to any one of claims 1 to 4 for taking kilovoltage portal images.
10. An accelerator substantially as described herein with reference to and/or as illustrated in the accompanying figures 4 to 8.